



IFW

Docket No.: 31978-230391
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Joseph J. Barchi, Jr. et al.

Art Unit: Not Yet Assigned

Application No: 10/578,405

Examiner: Not Yet Assigned

Filed: May 5, 2006

Atty. Docket No: 31978-230391

For: BIOFUNCTIONALIZED QUANTUM
DOTS FOR BIOLOGICAL IMAGING

Customer No:

26694
PATENT TRADEMARK OFFICE

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom. Copies of documents **B1-B10** and **CA-C19** are enclosed.

This Information Disclosure Statement is filed before the mailing date of a first Office Action on the merits as far as is known to the undersigned (37 CFR 1.97(b)(3)).

In accordance with 37 CFR 1.98(a)(2)(ii), Applicant has not submitted copies of U.S. patents and U.S. patent applications. Applicant submits herewith copies of foreign patents and non-patent literature in accordance with 37 CFR 1.98(a)(2).

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. In accordance with 37 CFR 1.97(h), the filing of this Information Disclosure Statement shall not be construed to be an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 22-0261, under Order No. 31978-230391. A Fee Transmittal is enclosed.

Dated: November 21, 2006

Respectfully submitted,

By 

Lars H. Genieser

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PTO/SB/17 (07-06)

Approved for use through 01/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no person are required to respond to a collection of information unless it displays a valid OMB control number.

Effective on 12/08/2004. Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818). FEE TRANSMITTAL For FY 2005		Complete if Known	
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27		Application Number	10/578,405
TOTAL AMOUNT OF PAYMENT		Filing Date	May 5, 2006
(\$)		First Named Inventor	Joseph J. Barchi, Jr.
		Examiner Name	Not Yet Assigned
		Art Unit	Not Yet Assigned
		Attorney Docket No.	31978-230391

METHOD OF PAYMENT (check all that apply)	
<input type="checkbox"/> Check	<input type="checkbox"/> Credit Card
<input type="checkbox"/> Money Order	<input type="checkbox"/> None
<input type="checkbox"/> Other (please identify): _____	
<input checked="" type="checkbox"/> Deposit Account	Deposit Account Number: <u>22-0261</u> Deposit Account Name: <u>Venable LLP</u>
For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)	
<input checked="" type="checkbox"/> Charge fee(s) indicated below	<input type="checkbox"/> Charge fee(s) indicated below, except for the filing fee
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FEE CALCULATION							
1. BASIC FILING, SEARCH, AND EXAMINATION FEES							
	FILING FEES		SEARCH FEES		EXAMINATION FEES		
Application Type	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fees Paid (\$)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	
2. EXCESS CLAIM FEES							
						Small Entity	
Fee Description						Fee (\$)	Fee (\$)
Each claim over 20 (including Reissues)						50	25
Each independent claim over 3 (including Reissues)						200	100
Multiple dependent claims						360	180
Total Claims		Extra Claims	Fee (\$)	Fee Paid (\$)	Multiple Dependent Claims		
_____ - 20 = _____		x _____	= _____		Fee (\$)		Fee Paid (\$)
HP = highest number of total claims paid for, if greater than 20.							
Indep. Claims		Extra Claims	Fee (\$)	Fee Paid (\$)			
_____ - 3 = _____		x _____	= _____				
HP = highest number of independent claims paid for, if greater than 3.							
3. APPLICATION SIZE FEE							
If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)			
_____ - 100 = _____	/50	_____ (round up to a whole number) x _____	= _____				
4. OTHER FEE(S)							
Non-English Specification, _____							
Other (e.g., late filing surcharge): _____							

SUBMITTED BY			
Signature		Registration No. (Attorney/Agent)	46,722
Name (Print/Type)	Lars H. Genieser, Ph.D.	Telephone	(202) 344-4000
		Date	November 21, 2006

:ODMAIPDCDOCSIDC2DOCS1180486111



PTO/SB/08A/B (09-06)

Approved for use through 03/31/2007. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	10/578,405
				Filing Date	May 5, 2006
				First Named Inventor	Joseph J. Barchi, Jr. et al.
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	1	of	5	Attorney Docket Number	31978-230391

U.S. PATENT DOCUMENTS						
Exami ner Initials *	Cite No. ¹	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)				
	AA*	US-2005/0214536-A1		09-29-2005	Schrier et al.	
	AB*	US-2005/0059031-A1		03-17-2005	Bruchez et al.	
	AC*	US-2004/0247517-A1		12-09-2004	Zehnder et al.	
	AD*	US-2004/0197816-A1		10-07-2004	Empedocles et al.	
	AE*	US-2004/0178338-A1		09-16-2004	Empedocles et al.	
	AF*	US-2004/0171039-A1		09-02-2004	Bruchez et al.	
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Examiner Signature					Date Considered	

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>			Complete if Known		
			Application Number	10/578,405	
			Filing Date	May 5, 2006	
			First Named Inventor	Joseph J. Barchi, Jr. et al.	
			Art Unit	Not Yet Assigned	
			Examiner Name	Not Yet Assigned	
Sheet	2	of	5	Attorney Docket Number	31978-230391

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Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ² -Number ⁴ -Kind Code ⁵ (if known)				
	B1	WO 2005/093422 A2	10-06-2005	U.S. Department of Health and Human Services		
	B2	WO 2005/093422 A3	10-06-2005	U.S. Department of Health and Human Services		
	B3	WO 2005/053649 A1	06-16-2005	U.S. Department of Health and Human Services		
	B4	WO 2004/039830 A2	05-13-2004	Regents of the University of California		
	B5	EP 0 810 853 B1	08-25-2004	Elan Pharma International Limited, Wood et al.		

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Sheet	3	of	5	Attorney Docket Number	31978-230391

	B6	PCT/US2005/009344 "Notification Concerning Transmittal of Copy of Int'l Prelim. Report on Patentability" and "Written Opinion of the ISA"	mailed 10-05-2006	U.S. Department of Health and Human Services		
	B7	WO 2006/093516 A2	09-08-2006	The Regents of the University of California		
	B8	International Search Report, date, issued in PCT/US2003/34897	mailed 08-20-2004	U.S. Department of Health and Human Services		
	B9	International Search Report and Written Opinion of the International Searching Authority, issued in PCT/US2005/009344	mailed 12-21-2005	U.S. Department of Health and Human Services		
	B10	International Preliminary Report on Patentability, date, issued in PCT/US2005/009344	mailed 10-05-2006	U.S. Department of Health and Human Services		

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NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		T ²
	CA	TAMURA et al., "Synthesis of Hydrophilic Ultrafine Nanoparticles Coordinated With Carbohydrate Cluster", <i>Journal of Carbohydrate Chemistry</i> , Vol. 21, No. 5, 2002 (pp. 445-449).		
	CC	AKERMAN et al., "Nanocrystal Targeting In Vivo", PNAS Vol. 99 No. 20, Oct. 1, 2002 (pp. 12617-12621).		
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	CE	Joseph J. BARCHI, JR. & Sergei SVAROVSKY, "Glycononotechnology: Construction and Properties of Sugar/Peptide-Bearing Nanoparticles", slide presentation Boston, MA, May 5, 2003 (19 pages).		
	CF	CHAN et al., "Luminescent Quantum Dots for Multiplexed Biological Detection and Imaging", <i>Current Opinion in Biotechnology</i> 2002, Vol. 13, Elsevier Science, Ltd. (pp 40-46).		
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	CH	LARSON et al., "Water-Soluble Quantum Dots for Multiphoton Fluorescence Imaging in Vivo", <i>SCIENCE</i> Vol. 300, May 30, 2003 (pp. 1434-1436).		
	CI	WANG et al., "Stabilization of Inorganic Nanocrystals by Organic Dendrons", <i>J. AM. CHEM. SOC.</i> Vol. 124, No. 10, Feb. 14, 2002 (pp. 2293-2298).		
	CJ	"Dynamics of Human Cells Revealed by Quantum Dots", <i>Bio-IT World - Best Practices</i> , June		
Examiner Signature		Date Considered		

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CS	WU et al., "Immunofluorescent Labeling of Cancer Marker Her2 and Other Cellular Targets with Semiconductor Quantum Dots", <i>Nature Biotechnology</i> , Vol. 21, January, 2003 (pp. 41-46).		
CT	OTSUKA et al., "PEGylated Nanoparticles for Biological and Pharmaceutical Applications", <i>Advanced Drug Delivery Reviews</i> , Vol. 55, 2003 (pp. 403-419).		
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C2	ALDANA et al., "Photochemical Instability of CdSe Nanocrystals Coated by Hydrophilic Thiols", <i>J. Am. Chem. Soc.</i> , Vol. 123, 2001 (p. 8844-8850)		
C3	BARRIENTOS et al., "Gold Glyconanoparticles: Synthetic Polyvalent Ligands Mimicking Glycolcalyx-Like Surfaces as Tools for Glycobiological Studies", <i>Chem. Eur. J.</i> , Vol. 9, 2003, (p. 1909-1921)		
C4	BARCHI et al., "Sugar-Coated Nanoparticles: Novel Scaffolds for the Study of Glycan and Glycopeptide-Mediated Processes", International Carbohydrates Symposium, Glasgow, Scotland, July 2004		
C5	SVAROVSKY et al., "Development of multivalent gold and semiconductor nanoparticles encapsulated with tumor associated glycoantigens as antimetastatic and early cancer detection agents", American Chemical Society National Meeting, Anaheim, California, March 27-April 1, 2004		
C6	LIANG et al., "Functionalized CdSe quantum dots as selective silver ion chemodosimeter", <i>Analyst</i> , 129(7), July 2004, pp. 619-622		
C7	LIN et al., "Studies on quantum dots synthesized in aqueous solution for biological labeling via electrostatic interaction", <i>Anal. Biochem.</i> , 319(2), pp. 239-243, August 15, 2003		
C8	CHEN et al., "Luminescent CdS quantum dots as selective ion probes", published in <i>Anal. Chem.</i> , 74(19), October 1, 2002, pp. 5132-8		
C9	GAPONIK et al., "Thiol-Capping of CdTe Nanocrystals: An Alternative to Organometallic Synthetic Routes", <i>J. Phys. Chem. B</i> , Vol. 106, No. 29, 2002, (pp. 7177- 7185)		
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Examiner Signature		Date Considered	
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Sheet	5	of	5	Attorney Docket Number	31978-230391

		process; Abstract only), Anal. Chem., July 1, 2004, vol. 76, no. 13, pp. 3638-45.	
	C14	(SEARCH 1) Results of LEXIS search performed September, 2004. Search string = atleast10(quantum dot or quantum confin! or nanocrystal!) and atleast10(bio!) and (mercaptoalkanoic or mercaptoalk! or mercaptosuccinic or mercaptoformic or mercaptoacetic or mercaptopropionic or mercaptobutyric or mercaptovaleric or mercaptocaproic or mercaptocaprylic or mercapto*****oic or mercapto*****oic or thioalkanoic or thioalk! or thiosuccinic or thioformic or thioacetic or thiopropionic or thiobutyric or thiovaleric or thiocaproic or thiocaprylic or thio*****oic or thio*****oic)	
	C15	(SEARCH 2) Results of LEXIS search performed September, 2004. Search string = atleast5(quantum dot or quantum confin! or nanocrystal!) and atleast5(bio!) and atleast3(glycol)	
	C16	(SEARCH 3) Results of LEXIS search performed September, 2004. Search string = (quantum dot or quantum confin! or nanocrystal!) and bio! and (mercapto! or thio!)	
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	C18	FAULKNER, "La. Tech Researches "Smart Tattoo" To Benefit Diabetics", www.thenewsstar.com, October 22, 2003 (pp. 1-2).	
	C19	CHEN, "Synthesis of Glyconanospheres Containing Luminescent CdSe-ZnS Quantum Dots", Nano Letters, Vol. 3, No. 5, 2003 (pp. 581-584).	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.

Examiner Signature		Date Considered	
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